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GRADE 12 DIPLOMA EXAMINATION

Mathematics 30

January 1989

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**GRADE 12 DIPLOMA EXAMINATION
MATHEMATICS 30**

DESCRIPTION

Time: 2½ hours

Total possible marks: 65

This is a **CLOSED-BOOK** examination consisting of three parts:

PART A: 45 multiple-choice questions each with a value of 1 mark.

PART B: Seven open-ended scannable questions each with a value of 1 mark.

PART C: Three written-response questions for a total of 13 marks.

GENERAL INSTRUCTIONS

All numbers used in this examination are to be considered as EXACT numbers and are not the result of a measurement.

A tear-out formula and z-score sheet is included in the booklet.

All students are expected to provide their own approved scientific calculator.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. NO MARKS will be given for work done on the tear-out sheets.

DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET

The presiding examiner will collect the answer sheet and examination booklet for transmission to Alberta Education.

JANUARY 1989

PART A

INSTRUCTIONS

There are 45 multiple-choice questions with a value of one mark each in this section of the examination. All numbers used in the questions are to be considered as EXACT numbers and are not the result of a measurement. Use the separate answer sheet provided and follow the specific instructions given.

Read each question carefully and decide which of the choices BEST completes the statement or answers the question. Locate that question number on the answer sheet and fill in the space that corresponds to your choice. USE AN HB PENCIL ONLY.

Example

This examination is for the subject area of

- A. Biology
- B. Physics
- C. Chemistry
- D. Mathematics

Answer Sheet

A	B	C	D
①	②	③	●

If you wish to change an answer, please erase your first mark completely.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. NO MARKS will be given for work done on the tear-out sheets.

WHEN YOU HAVE COMPLETED PART A, PROCEED DIRECTLY TO PART B

DO NOT TURN THE PAGE TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER

PART A

INSTRUCTIONS

There are 40 multiple-choice questions with a value of one point each in this section of the examination. All answers must be marked on the question sheet in the space provided. The examination is to be completed in 1 hour and 15 minutes. The questions are arranged in order of increasing difficulty. The questions are arranged in order of increasing difficulty.

Read each question carefully and choose the best answer from the four choices given. Mark your answer on the question sheet in the space provided. The examination is to be completed in 1 hour and 15 minutes. The questions are arranged in order of increasing difficulty.

Example:

The value of x for the equation $2x + 3 = 7$ is

- A. 2
- B. 3
- C. 4
- D. 5

If you wish to change an answer, please mark your new answer.

NOTE: The question paper is the back of the book. Do not use the back of the question paper for any other purpose. The examination is to be completed in 1 hour and 15 minutes. The questions are arranged in order of increasing difficulty.

When you have completed Part A, please turn the page to Part B.

DO NOT TURN THE PAGE TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER.

1. For $0^\circ < \theta < 180^\circ$, which of the primary trigonometric functions may have a negative value?
- A. $\sin \theta$ and $\cos \theta$
 - B. $\sin \theta$ and $\tan \theta$
 - C. $\tan \theta$ and $\cos \theta$
 - D. $\cos \theta$ only
2. The exact value of $\sec\left(-\frac{19\pi}{6}\right)$ is
- A. $-\frac{\sqrt{3}}{3}$
 - B. $-\frac{2\sqrt{3}}{3}$
 - C. $-\sqrt{2}$
 - D. -2
3. To the nearest tenth of a degree, an angle of 2.5 radians corresponds to
- A. 36.8°
 - B. 46.2°
 - C. 143.2°
 - D. 226.2°
4. The expression $\frac{\cot \theta}{\tan \theta}$ is equivalent to
- A. $\frac{\cos \theta}{\sin \theta}$
 - B. $\frac{\sin \theta}{\cos \theta}$
 - C. $\frac{\sin^2 \theta}{\cos^2 \theta}$
 - D. $\frac{\cos^2 \theta}{\sin^2 \theta}$

5. If $\tan \theta = \frac{m}{p}$ and $\cos \theta = -\frac{p}{7}$, then $\csc \theta$ is

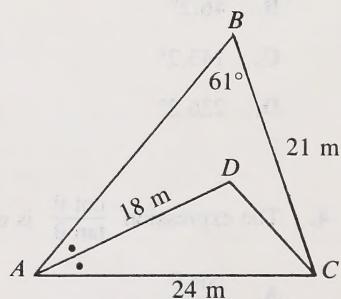
- A. $-\frac{7}{m}$
- B. $-\frac{7}{p}$
- C. $-\frac{m}{7}$
- D. $\frac{7}{m}$

6. The sides of a triangle are 7 m, 8 m, and 13 m. In this triangle, the measure of the largest angle is

- A. 30°
- B. 60°
- C. 120°
- D. 150°

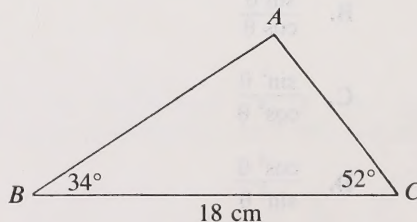
7. In the diagram shown at the right, AD bisects $\angle BAC$. The measure of segment CD correct to the nearest metre is

- A. 10 m
- B. 11 m
- C. 12 m
- D. 16 m



8. The area of the triangle at the right, correct to the nearest tenth of a square centimetre, is

- A. 50.9 cm^2
- B. 71.6 cm^2
- C. 73.8 cm^2
- D. 100.8 cm^2



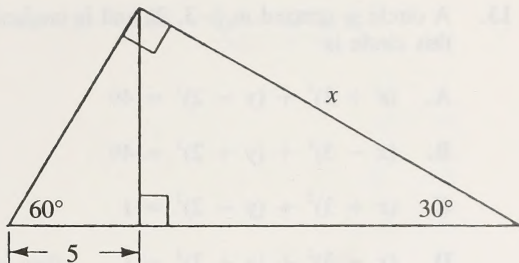
9. In the diagram at the right, the exact value of x is

A. $\frac{10\sqrt{3}}{3}$

B. 10

C. $10\sqrt{3}$

D. 20



10. If $5 \cos^2 \theta + 2 \cos \theta = 0$, $90^\circ < \theta < 180^\circ$, then the value of θ correct to the nearest tenth of a degree is

A. 113.6°

B. 101.5°

C. 78.5°

D. 66.4°

11. The major axis of an ellipse is 26 units long and the foci are at $(\pm 5, 0)$. The equation of the ellipse is

A. $\frac{x^2}{13} + \frac{y^2}{5} = 1$

B. $\frac{x^2}{13} + \frac{y^2}{12} = 1$

C. $\frac{x^2}{169} + \frac{y^2}{25} = 1$

D. $\frac{x^2}{169} + \frac{y^2}{144} = 1$

12. The locus of all points $P(x, y)$ in a plane that are equidistant from the point $(3, 7)$ and the line $y = 1$ defines

A. a circle

B. an ellipse

C. a parabola

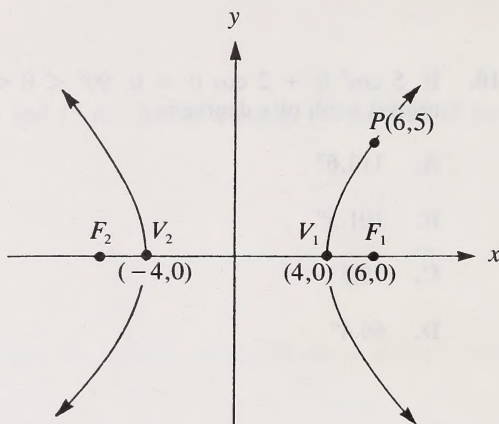
D. a hyperbola

13. A circle is centred at $(-3, 2)$ and is tangent to the line $x = 4$. The equation of this circle is

- A. $(x + 3)^2 + (y - 2)^2 = 49$
- B. $(x - 3)^2 + (y + 2)^2 = 49$
- C. $(x + 3)^2 + (y - 2)^2 = 1$
- D. $(x - 3)^2 + (y + 2)^2 = 1$

14. In the sketch of the hyperbola at the right, the length of a line segment joining P and F_2 is

- A. 7
- B. 8
- C. 12
- D. 13



15. The equation of the circle $2x^2 + 2y^2 + 8x - 4y - 6 = 0$ is equivalent to

- A. $(x + 2)^2 + (y - 1)^2 = 8$
- B. $(x + 4)^2 + (y - 2)^2 = 8$
- C. $(2x + 2)^2 + (2y - 1)^2 = 12$
- D. $(2x + 4)^2 + (2y - 2)^2 = 26$

16. A parabola with axis of symmetry $y = -3$ and directrix $x = -2$ passes through the point $(4, 3)$. The equation of the parabola is

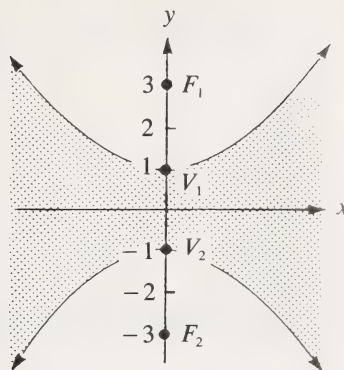
- A. $y^2 - 16x + 6y + 37 = 0$
- B. $y^2 - 12x + 6y + 21 = 0$
- C. $y^2 - 4x + 12y - 29 = 0$
- D. $y^2 + 4x - 12y + 11 = 0$

17. The centre of the circle defined by $x^2 + y^2 = 14x - 6y - 49$ is at

- A. $(-7, 3)$
- B. $(7, -3)$
- C. $(-14, 6)$
- D. $(14, -6)$

18. When the light from a lamp hits the wall, a hyperbola is formed as shown at the right. If F_1 and F_2 are the foci and V_1 and V_2 are the vertices, then the equation of the hyperbola is

- A. $\frac{x^2}{1} - \frac{y^2}{2\sqrt{2}} = 1$
- B. $\frac{y^2}{1} - \frac{x^2}{2\sqrt{2}} = 1$
- C. $\frac{x^2}{8} - \frac{y^2}{1} = 1$
- D. $\frac{y^2}{1} - \frac{x^2}{8} = 1$



19. For the ellipse $x^2 + \frac{y^2}{9} = 1$, the vertices and foci are respectively at

- A. $(\pm 3, 0), (\pm\sqrt{10}, 0)$
- B. $(\pm 3, 0), (\pm 2\sqrt{2}, 0)$
- C. $(0, \pm 3), (0, \pm 2\sqrt{2})$
- D. $(0, \pm 3), (0, \pm\sqrt{10})$

20. If 6, x , and 54 are consecutive terms of a geometric sequence, then a value of x is

- A. 9
- B. 18
- C. 30
- D. 48

21. In an arithmetic sequence the fifth term is 35 and the 11th term is -1 .
The first term is equal to
- A. 59
B. 53
C. 11
D. -6
22. For the series defined by $\sum_{n=a}^b n^2$, the number of terms is
- A. b
B. $b - a$
C. $b - a - 1$
D. $b - a + 1$
23. If \$1500 is invested in an account at 12% per annum compounded semi-annually, then the accumulated amount immediately after 6 years will be
- A. \$3018.29
B. \$2960.73
C. \$2580.00
D. \$2127.78
24. For the arithmetic series $18 + 14 + 10 + 6 + \dots$, the sum of the first 90 terms is
- A. 17 640
B. $-14\,400$
C. $-14\,580$
D. $-15\,210$
25. For the series $8 + (-4) + (2) + \dots + 8\left(-\frac{1}{2}\right)^{n-1} + \dots$, the sum is
- A. 16
B. 12
C. $\frac{16}{3}$
D. $\frac{8}{3}$

26. If the first term of a geometric series is -3 and the eighth term is $\frac{3}{128}$, the common ratio is
- A. 2
- B. $\frac{1}{2}$
- C. $-\frac{1}{2}$
- D. -2
27. If $\frac{2}{\sqrt{2}}$, $2\sqrt{2}$, and $\frac{6}{\sqrt{2}}$ are three consecutive terms of an arithmetic sequence in that order, then the common difference is
- A. 1
- B. $\sqrt{2}$
- C. 2
- D. $2\sqrt{2}$
28. The limit of the sequence $\frac{3}{2}, \frac{5}{3}, \frac{7}{4}, \dots, \left(1 + \frac{n}{n+1}\right), \dots$ is
- A. 0
- B. 1
- C. 2
- D. non-existent
29. A ball starting from rest rolls down an inclined plane and travels 3 cm during the first second, 9 cm during the next second, and 15 cm during the third second. If this arithmetic pattern continues, how much time will it take the ball to travel a total of 300 cm?
- A. 9 s
- B. 10 s
- C. 11 s
- D. 12 s

30. A red die and a green die are to be rolled and the sum recorded. The chart at the right, when completed, will illustrate all possible outcomes when the two dice are cast. Assuming that all these outcomes are equally likely, find the probability that on one throw of the dice, the sum will be less than 10.

A. $\frac{1}{6}$

B. $\frac{2}{3}$

C. $\frac{3}{4}$

D. $\frac{5}{6}$

		Number rolled on RED die					
		1	2	3	4	5	6
Number rolled on GREEN die	1						
	2						
	3						
	4						
	5						
	6		8				
		sum of 6 + 2 = 8					

31. Every Grade 10 student in a school district wrote four achievement examinations and the results were found to be normally distributed. Considering all the data in the table at the right, Henry ranks highest in

- A. Mathematics
B. Chemistry
C. Biology
D. Physics

	Mean	Standard Deviation	Henry's Score
Mathematics	62	3	71
Chemistry	73	4	83
Biology	57	7	62
Physics	68	6	76

32. In a standard normal distribution, 84.80% of the data lies between $z = -1.72$ and $z = k$. The percentage of the data with a z-score greater than k is
- A. 7.60%
B. 10.93%
C. 13.17%
D. 16.28%

33. In a standardized examination, 7% is added to each test score. When this change is made, the standard deviation
- A. remains unchanged
 - B. is increased by 7
 - C. is increased by 0.07
 - D. is increased by a factor of 7%
34. Written as a single logarithm, $\frac{1}{2} \log_{10}(a) + 3 \log_{10}(b - 1)$ is
- A. $\log_{10}(\sqrt{a} + 3b^3)$
 - B. $\log_{10}(\sqrt{a}(b - 1)^3)$
 - C. $\log_{10}\left(\frac{\sqrt{a} b}{3}\right)$
 - D. $\log_{10}(a + b^3 - 1)$

Use the following information to answer question 35.

$$N(t) = C\left(2^{\frac{t}{d}}\right), \text{ where } N(t) = \text{number of bacteria after } t \text{ hours}$$

t = time in hours
 C = initial number of bacteria
 d = doubling time in hours

35. A culture starts with 3000 bacteria and after 3 h it reaches 48 000 bacteria. For the culture to double in number, the time required to the nearest minute is
- A. 19 min
 - B. 28 min
 - C. 45 min
 - D. 80 min
-

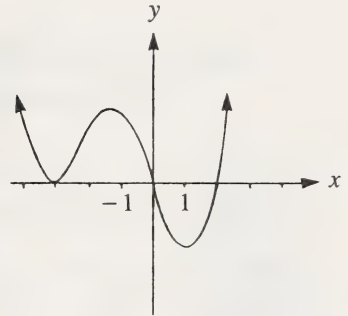
36. If $\log_2(-64) = x$, then
- A. $x = 5$
- B. $x = -5$
- C. $x = \frac{1}{5}$
- D. there is no real solution
37. If $[\log_2(x)]^2 - 6 = \log_2(x)$, then a value of x is
- A. $\frac{1}{4}$
- B. $\frac{1}{8}$
- C. -4
- D. -8
38. The solution for the system $\begin{cases} 3^{x-y} = 9 \\ 27^y = 3^{x+2} \end{cases}$ is
- A. $x = 4$ and $y = 2$
- B. $x = 3$ and $y = 1$
- C. $x = 2$ and $y = 0$
- D. $x = 1$ and $y = -1$
39. A simplified form of $\left(\frac{32a^3}{24a^{-5}}\right)^2$ is
- A. $\frac{4a^4}{3}$
- B. $\frac{16a^4}{9}$
- C. $\frac{4a^{16}}{3}$
- D. $\frac{16a^{16}}{9}$

40. If $P(2) = P(-3) = 0$, then a second degree factor of the polynomial $P(x)$ is

- A. $x^2 - 5x + 6$
- B. $x^2 - x - 6$
- C. $x^2 + x - 6$
- D. $x^2 + 5x + 6$

41. The polynomial function whose graph is shown at the right may be of

- A. degree 4 with 4 zeros, all distinct
- B. degree 3 with 3 zeros, all distinct
- C. degree 4 with 4 zeros, two of which are equal
- D. degree 3 with 3 zeros, two of which are equal



42. If $x + 5$ is a factor of $P(x)$, then

- A. $x = 5$
- B. $P(5) = 0$
- C. $P(x) = 0$
- D. $P(-5) = 0$

43. If $P(x) = ax^3 + bx - 3$ and $P(-1) = 0$, then the value of $P(1)$ is

- A. -6
- B. -3
- C. 3
- D. 6

44. If $x - 1$ and $x + 2$ are factors of $ax^3 - 2x^2 + bx + 6$, then the remaining first degree factor is
- A. $x + 6$
 - B. $x - 6$
 - C. $x + 3$
 - D. $x - 3$
45. If $x^5 - x^3 + 2x - 2$ is divided by $x - 1$, the quotient is
- A. $x^4 + x^3 + x^2 + x + 2$
 - B. $x^4 + x^3 + 2$
 - C. $x^4 - x^3 + 2$
 - D. $x^4 + 2$

**YOU HAVE NOW COMPLETED THE MULTIPLE-CHOICE SECTION
OF THE EXAMINATION. PLEASE PROCEED TO PART B AND
ANSWER THE OPEN-ENDED SCANNABLE QUESTIONS.**

PART B

INSTRUCTIONS

There are seven open-ended scannable questions with a value of one mark each in this section of the examination. All numbers used in the questions are to be considered as EXACT numbers and are not the result of a measurement.

Read each question carefully.

Solve each question and write your answer to the nearest tenth.

Record your answer on the answer sheet by writing it in the boxes of the corresponding answer field and by filling in one circle in EVERY column as illustrated.

Sample Questions and Solutions

- 1) If θ is acute and $\sin \theta = 0.6735$, then the measure of θ correct to the nearest tenth of a degree is _____.

$$\theta = 42.33777464\dots$$

RECORD 042.3

- 2) For the arithmetic series $-8 + (-5) + (-2) + \dots + (85)$, the number of terms correct to the nearest tenth is _____.

$$85 = -8 + (n - 1)(3)$$

$$93 = 3n - 3$$

$$n = 32$$

RECORD 032.0

1

0	4	2	3
●	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

2

0	3	2	0
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

If you wish to change an answer, please erase your first answer completely.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. NO MARKS will be given for work done on the tear-out sheets.

WHEN YOU HAVE COMPLETED PART B, PLEASE PROCEED DIRECTLY TO PART C.

1. In $\triangle ABC$, $BC = 23$ cm, $\angle ABC = 28^\circ$, and $\angle ACB = 37^\circ$. The measure of AC correct to the nearest tenth of a centimetre is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

2. For the parabola $x^2 = 15y$, the distance between the focus and directrix correct to the nearest tenth of a unit is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

3. In an arithmetic series, the first term is -12 and the 15th term is 44 . The sum of the first 15 terms correct to the nearest tenth is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

4. Immediately after 6 years, a \$270 investment has an accumulated value of \$450. If the interest was compounded once a year, the annual interest rate expressed as a percentage correct to the nearest tenth is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

5. A box contains 10 identical slips of paper, which have been numbered from 1 to 10. If one slip of paper is drawn at random, the probability, correct to the nearest tenth, that the number on that slip is even OR a multiple of 3 is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

6. If $\log_{(x-6)}(x) = 2$, then the largest value of x correct to the nearest tenth is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

7. If $2x^3 - 10x^2 + kx + 7$ is divided by $x - 3$, the remainder is 4. The value of k correct to the nearest tenth is _____ .

RECORD THE ANSWER ON THE ANSWER SHEET

**YOU HAVE NOW COMPLETED THE OPEN-ENDED SCANNABLE SECTION
OF THE EXAMINATION. PLEASE PROCEED TO PART C AND ANSWER
THE WRITTEN-RESPONSE QUESTIONS.**

PART C

INSTRUCTIONS

There are three written-response questions for a total of 13 marks in this section of the examination. All numbers used in the questions are to be considered as EXACT numbers and are not the result of a measurement.

Please write your answers in the examination booklet as neatly as possible.

Show all pertinent calculations and formulas.

<p>NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work. NO MARKS will be given for work done on the tear-out sheets.</p>
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START PART C IMMEDIATELY

**FOR
DEPARTMENT
USE ONLY**

(4 marks)

1. Cases of apples chosen at random contain a mean of 48 apples per case with a standard deviation of 10. If the number of apples per case is distributed normally, and a wholesaler purchases 800 cases, how many cases would be expected to contain between 39 and 66 apples?

The number of cases is _____

- | L.S. | R.S. |
|------|------|
| | |

- find θ correct to the nearest tenth of a degree.

$$\theta =$$

(4 marks)

3. An ellipse with vertices at $(\pm 6, 0)$ passes through the point $(3, 3)$. Determine the equation of the ellipse.

The equation is _____

**YOU HAVE NOW COMPLETED THE EXAMINATION. IF YOU HAVE TIME,
YOU MAY WISH TO GO BACK AND CHECK YOUR ANSWERS.**

MATHEMATICS 30 FORMULA SHEET

I. Trigonometry

1. $\pi = 3.14159$
2. $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
3. $a^2 = b^2 + c^2 - 2bc \cos A$
4. $\sin^2 A + \cos^2 A = 1$
5. $1 + \tan^2 A = \sec^2 A$
6. $1 + \cot^2 A = \csc^2 A$
7. $\sin\left(\frac{\pi}{2} - \theta\right) = \cos \theta$
8. $\cos\left(\frac{\pi}{2} - \theta\right) = \sin \theta$
9. $\sin(A + B) = \sin A \cos B + \cos A \sin B$
10. $\sin(A - B) = \sin A \cos B - \cos A \sin B$
11. $\cos(A + B) = \cos A \cos B - \sin A \sin B$
12. $\cos(A - B) = \cos A \cos B + \sin A \sin B$
13. $\sin(-\theta) = -\sin \theta$
14. $\cos(-\theta) = \cos \theta$
15. $\tan(-\theta) = -\tan \theta$

II. Quadratic Relations

1. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
2. $d = \frac{|Ax_1 + By_1 + C|}{\sqrt{A^2 + B^2}}$
3. $M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
4. $(x - h)^2 + (y - k)^2 = r^2$
5. $x^2 + y^2 + Dx + Ey + F = 0$
6. $(y - k)^2 = 4p(x - h)$
7. $(x - h)^2 = 4p(y - k)$
8. $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1, a^2 = b^2 + c^2$
9. $\frac{y^2}{a^2} + \frac{x^2}{b^2} = 1, a^2 = b^2 + c^2$
10. $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1, c^2 = a^2 + b^2$
11. $\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1, c^2 = a^2 + b^2$

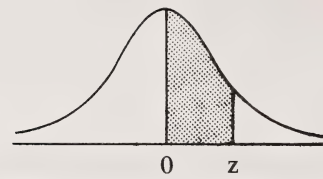
III. Sequences, Series, and Limits

1. $t_n = a + (n - 1)d$
2. $S_n = \frac{n(a + t_n)}{2}$
3. $S_n = \frac{n[2a + (n - 1)d]}{2}$
4. $A = P(1 + i)^n$
5. $t_n = ar^{n-1}$
6. $S_n = \frac{a(r^n - 1)}{r - 1}$
7. $S_n = \frac{rt_n - a}{r - 1}$
8. $S = \frac{a}{1 - r}, -1 < r < 1$

IV. Statistics

1. $\mu = \frac{x_1 + x_2 + \dots + x_n}{n}$
2. $\sigma = \sqrt{\frac{(x_1 - \mu)^2 + \dots + (x_n - \mu)^2}{n}}$
3. $z = \frac{x - \mu}{\sigma}$

AREAS UNDER THE STANDARD NORMAL CURVE



z	0	1	2	3	4	5	6	7	8	9
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0754
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2258	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2518	0.2549
0.7	0.2580	0.2612	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2996	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998
3.5	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998
3.6	0.4998	0.4998	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.7	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.8	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.9	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000

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(FIRST NAME)

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